Arboricultural Impact Assessment

WC-135.2a

2 Tivy Dale, Cawthorne, Barnsley S75 4EY

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Executive Summary

Woodsage Consulting Ltd have been instructed by Harriette Morley, on behalf of G Morley Ltd, to undertake an Arboricultural Impact Assessment of the land at 2 Tivy Dale, Cawthorne, Barnsley S75 4EY, in relation to the proposed development of the site.

The development proposals are to extend upon the north aspect of the property; to demolish the existing garage and subsequently construct a new freestanding garage with extended driveway; and to carry out soft-landscaping works within the garden to the rear of the property.

According to information available on the website of Barnsley Metropolitan Borough Council (2023), the site is located within the Cawthorne Conservation Area, and therefore all trees with a stem diameter of > 75 mm at 1.5 m above ground level, are afforded statutory protection.

The site survey identified a total of 10 individual trees and two groups of trees with the potential to be affected by the development proposals. The trees situated on or immediately adjacent to the site include five Category B trees of moderate-quality, and five Category C trees and two groups of low-quality.

The proposed development will necessitate the removal of four Category C trees, and two Category C groups of low-quality. The development seeks to retain all Category B trees at the site, with the root protection areas (RPAs) of these unimpacted and to be suitably protected throughout the construction process.

If the recommendations made within this document are followed, the development is considered achievable, with minimal impact in arboricultural terms to the site and surrounding area.

To account for the required tree removals, it is recommended that a minimum of four trees are included within a post-development mitigation planting scheme.

1. Introduction

1.1. Introduction & Scope of Report

1.1.1. Woodsage Consulting Ltd have been instructed by Harriette Morley, on behalf of G Morley Ltd, to undertake an Arboricultural Impact Assessment of the land at 2 Tivy Dale, Cawthorne, Barnsley S75 4EY, in relation to the proposed development of the site.

1.1.2. The purpose of this report is to allow the local planning authority (LPA) to assess information regarding trees at the site as part of the planning submission, and to demonstrate to the LPA that appropriate consideration has been given to the subject of trees as part of the development proposals.

1.1.3. In accordance with *BS 5837: 2012: Trees in Relation to Design, Demolition and Construction - Recommendations* (hereafter referred to as *BS 5837: 2012*), this report sets out to:

- Assess the quality and value of the trees on and immediately adjacent to the site.
- Identify trees for removal and/or retention, in consideration of the development proposals (where feasible, removals will be restricted to the less significant specimens on site).
- Prescribe tree protection measures where necessary, which will ensure the successful retention of the retained trees at the site; in accordance with *BS 5837: 2012*, these measures will be further detailed in an Arboricultural Method Statement.
- Assess the site and detail requirements for mitigation tree planting where tree removals have been specified to facilitate the proposed development.

1.1.4. The contents of this report are concerned with arboricultural issues alone; although other disciplines such as engineering and ecology may referenced, it is important to gain advice from the appropriate expert on these matters.

1.2. Site Details

1.2.1. The site - illustrated in ***Fig. 1.1***, below - is located at grid reference SE 28255 07921, and consists of the existing residential property, adjacent freestanding garage, and surrounding garden.



Figure 1.1: *Aerial imagery showing the approximate boundary of the site outlined in red (Google Earth Pro, 2023)*

1.2.2. The site is bordered by neighbouring residential properties to the north and west, by Dark Lane to the east, and by Tivy Dale to the south. Th topography of the site is predominantly flat.

1.3. Desk Based Study and Planning Context

1.3.1. Cranfield (2023) states that the site and surrounding area consists of "*Freely draining, slightly acid, loamy soils".* No further detailed soil analysis was carried out as part of the survey.

1.3.2. According to information available on the website of Barnsley Metropolitan Borough Council (2023), the site is located within the Cawthorne Conservation Area, and therefore all trees with a stem diameter of > 75 mm at 1.5 m above ground level, are afforded statutory protection.

1.3.3. In addition, trees located immediately to the west of the site are also subject to a woodland tree preservation order (TPO Reference Number: 1)

1.4. Development Proposals

1.4.1. The development proposals are to extend upon the north aspect of the property; to demolish the existing garage and subsequently construct a new freestanding garage with extended driveway; and to carry out soft-landscaping works within the garden to the rear of the property.

2. Methods

2.1. Survey Details

2.1.1. The site survey was carried out on Tuesday 6th December 2022. The weather at time of survey was fine and dry; visibility of the trees was not impeded.

2.2. Survey Personnel

2.2.1. The survey was carried out by Jack Delaney. Jack has worked in the arboricultural sector for 15 years, holds an FdSc in Arboriculture, and is a Professional Member of the Arboricultural Association and an Associate Member of the Institute of Chartered Foresters. Jack is also a LANTRA Qualified Professional Tree Inspector and is a trained and registered user of Quantified Tree Risk Assessment (QTRA).

2.3. Survey Methodology

2.3.1. Only substantial trees with a stem diameter of 75 mm or above were included as part of the survey, as is recommended in *BS 5837:2012*.

2.3.2. The trees were inspected from ground level, using the Visual Tree Assessment (VTA, Mattheck and Breloer, 1994). Although notable defects of trees were recorded, the site survey did not constitute a full tree safety assessment. No specialist decay detection equipment was used as part of the survey, though sounding and probing tools were used where necessary.

2.3.3. Tree information was collected in accordance with *BS 5837:2012*, and includes species, height, diameter, crown spread, crown clearance, age class, condition, vitality, and estimated remaining contribution.

2.3.4. Trees were allocated to one of four categories (U, A, B or C) as defined in ***Tab. 2.1***, below, to reflect amenity value and suitability for retention, in consideration of the development proposals.

Table 2.1: *BS 5837:2012* cascade chart (adapted from British Standards, 2012)

Category	Definition	Retention	Colour code
Category A	Trees of high quality with an estimated remaining life expectancy of at least 40 years; trees that are particularly good examples of their species, especially if rare or unusual.	Highly desirable	Light green
Category B	Trees of moderate quality with an estimated remaining life expectancy of at least 20 years; trees lacking the special quality to merit category A designation.	Desirable	Dark blue
Category C	Trees of low quality with an estimated remaining contribution of at least 10 years, or trees with a stem diameter below 150mm; unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.	Feasible, but should be removed if posing a constraint to development	Grey
Category U	Trees that have serious, irremediable, structural and/or physiological defects, including those that will become unviable after removal of other category U trees.	Unfeasible	Red

2.3.5. Subcategories 1, 2 and 3 were also given to trees, and reflect arboricultural and landscape qualities, and cultural values, respectively.

2.3.6. Tree heights were measured using a clinometer to the nearest metre; crown spreads were measured to the north, east, south, and west aspects, using a laser measurer to the nearest metre.

2.3.7. Where access to trees was obstructed or obscured, height and crown spread measurements have instead been estimated.

2.3.8. The diameter at breast height (DBH) of trees was measured at 1.5 m above ground level, and rounded to the nearest centimetre. This was then used to calculate the root protection area (RPA) of trees using methods prescribed in *BS 5837:2012*:

- For single stem trees, the RPA was calculated as a circle with a radius 12 times the DBH.
- For trees with 2-5 stems, the combined stem diameter was first calculated using the formula:

$$\sqrt{(\textbf{Stem 1 DBH})^2 + (\textbf{ Stem 2 DBH})^2 + \dots (\textbf{Stem 5 DBH})^2}$$

- For trees with 6 or more stems, the combined stem diameter was first calculated using the formula:

$$\sqrt{(\mu\, \boldsymbol{DBH})^2 \textbf{ x number of stems}}$$

2.4. Constraints

2.4.1. The survey was constrained by the season in which it took place; certain tree pathogens, for example, the fructifications of decay fungi, are only visible at specific times of year.

2.4.2. A topographical survey was not provided for the purpose of this survey; trees have instead been plotted using a combination of land features, manual measurements, and GPS, with an estimated accuracy of within 3 m.

3. Survey Results and Observations

3.1. Tree Population and Amenity Value

3.1.1. The site survey identified a total of 10 individual trees and two groups of trees with the potential to be affected by the development proposals.

3.1.2. The tree species currently found at the site include sycamore (*Acer pseudoplatanus*), Lawson cypress (*Chamaecyparis lawsoniana*), common hazel (*Corylus avellana),* Leyland cypress (*Cupressus* x *leylandii*), hawthorn (*Crataegus monogyna*), European beech (*Fagus sylvatica*), common ash (*Fraxinus excelsior*), common holly (*Ilex aquifolium*), domestic apple (*Malus domestica*), English yew (*Taxus baccata*), elder (*Sambucus nigra*), and wych elm (*Ulmus glabra*)

3.1.3. The trees at the site are all located to the north of the main property, around the perimeter of the rear garden.

3.1.4. Several trees located to the far north of the site have reached early-maturity, and are visible from both Dark Lane and Tivy Dale. These trees provide significant amenity value to the surrounding area and are anticipated to present the main arboricultural constraint to the development.

3.2. Tree Categorisation

3.2.1. The trees situated on or immediately adjacent to the site include five Category B trees of moderate-quality, and five Category C trees and two groups of low-quality.

3.2.2. There were no Category A trees of high-quality, or Category U trees which display serious, irremediable, structural and/or physiological defects, identified at the site.

3.2.3. A summary of the *BS 5837:2012* categories of trees at the site is given in ***Tab. 3.1***, below.

Table 3.1: *Summary of Tree Categories*

Category	Description	Tree/Group Numbers	Totals
B	Trees of moderate-quality, which should where possible be retained throughout any proposed development	T004, T005, T008, T009, T010	5 Trees
C	Trees of low-quality, which should not be considered a constraint to development	T001. T002, T003, T006, T007 G001, G002	5 Trees 2 Groups
	Subtotal:		**10 Trees** **2 Groups**

3.2.4. Tree data can be viewed in ***Appendix 1: Tree Survey Schedule***. Images of the trees can be viewed in ***Appendix 2: Images of Trees***. Tree locations, and the above and below ground constraints posed by trees, can be viewed in ***Appendix 4: Tree Constraints Plan***.

4. Impact Assessment

4.1. Tree Removals

4.1.1. To facilitate the development proposals, G001, G002, T001, T002, T003 and T007 will necessitate removal.

4.1.2. T001 and T002 are positioned adjacent to the existing driveway and will necessitate removal to facilitate the proposed widening of the entrance.

4.1.3. T003 and G001 are positioned within the rear garden of the property and will necessitate removal to facilitate soft-landscaping and garden renovations, which are to be included as part of the development.

4.1.4. T007 and G002 are positioned within the footprint of the proposed garage and/or extended driveway, and as such, without their removal the development proposals would be unfeasible.

4.1.5. G001, G002, T001, T002, T003 and T007 include Category C trees of low-quality only, which are of limited amenity value; in accordance with *BS 5837:2012*, these should not be considered a constraint to the development.

4.2. Tree Root Protection Areas (RPAs)

4.2.1. The RPAs of the retained trees will not be adversely impacted by the development proposals.

4.2.2. The tree protection fencing and ground protection - detailed in ***Section 5*** and ***Section 7*** of the ***Arboricultural Method Statement*** in ***Appendix 3***, and illustrated in the ***Tree Protection Plan*** in ***Appendix 6*** - will ensure that the RPAs of the retained trees are suitably protected from development activities.

4.3. Shade Analysis

4.3.1. The development proposals are not anticipated be impacted significantly by shading from the adjacent trees.

4.3.2. A visual representation of anticipated shading at the site can be viewed in ***Appendix 5: Shade Analysis Plan***.

4.4. Services and Other Considerations

4.4.1. Underground services should be installed outside of the RPAs of the retained trees, ideally utilising those which already exist. If there are any areas of conflict however, this should first be reported to the Project Arboriculturalist, so that appropriate measures may be taken.

5. Recommendations

5.1. Tree Works

5.1.1. Prior to development works commencing, G001, G002, T001, T002, T003 and T007 will necessitate removal.

5.2. Legal Constraints

5.2.1. According to information available on the website of Barnsley Metropolitan Borough Council (2023), the site is located within the Cawthorne Conservation Area, and therefore all trees with a stem diameter of > 75 mm at 1.5 m above ground level, are afforded statutory protection.

5.2.2. No tree removals should therefore be carried out without prior written consent from Barnsley Metropolitan Borough Council. Killing or damaging a protected tree is a criminal offence and can result in an unlimited fine.

5.2.3. All tree works, including tree removals, should be carried out by a fully insured and suitably qualified arboricultural contractor who is able to comply with *BS 3998: 2010: Tree Works - Recommendations*.

5.3. Tree Protection

5.3.1. Construction, and any other works involving excavations, can cause irreversible damage to trees - particularly those which have reached maturity - which are far less capable of adapting to alterations in their surrounding environment. Whilst above-ground injuries are usually obvious, root damage is often concealed, though can have equally devastating impacts to tree health.

5.3.2. Direct root damage includes root severance, which can be caused by digging of trenches and ditches, and/or the stripping of topsoil. Indirect damage may involve the raising of soil levels, alterations in drainage patterns, the laying of impervious surfaces, and/or soil compaction.

5.3.3. Compaction of soils is regarded as the most common cause of death or damage to retained trees on development sites. Soil compaction reduces soil pore space, which in turn reduces soil air, the passage of water and available nutrients. These anaerobic conditions prevent root growth and the proliferation of soil microbes essential to tree health. Symptoms in trees may include crown die-back, sparse, and small foliage, poor extension growth; however, these are usually not evident until well after the occurrence of compaction. Even one pass of a vehicle in wet conditions can cause irreparable soil compaction.

5.3.4. To avoid both direct and indirect damage to the roots of the retained trees, temporary tree protection fencing, and ground protection should be put in place throughout development works, to ensure that retained trees survive the development and thrive upon its completion. The location of tree protection fencing can be viewed in ***Appendix 6: Tree Protection Plan***; details of its specification can be found in ***Appendix 3: Arboricultural Method Statement***.

5.3.5. As the majority of tree roots are typically found within the first 600 mm of ground level - particular attention should also be paid to existing levels - which should be observed and maintained within tree RPAs. Any unavoidable excavations into the soil within the RPAs should be carried out by use of hand-operated tools only, and only under prior approval of the Project Arboriculturalist. No roots > 25 mm in diameter should be severed without first consulting the Project Arboriculturalist.

5.3.6. It is recommended that demotion and construction works follow the ***Arboricultural Method Statement*** provided in ***Appendix 3***. This includes further details regarding tree removals, along with

specifications for tree protection fencing, ground protection, and other protective measures to be adhered to throughout the development.

5.3.7. As aspects of the development may be subject to change, the Arboricultural Method Statement should be reviewed by the Project Arboriculturalist prior to the commencement of works on the site.

5.4. Mitigation

5.4.1. The development proposals will necessitate the removal of four Category C trees and two Category C groups.

5.4.2. The development necessitates the removal of low-quality trees only, with those of moderate-quality retained; with this in mind, the impacts upon the amenity and ecology of the site and surrounding area are anticipated to be negligible. It is recommended however that four trees - regular-standard in size - are included within a post-development mitigation planting scheme.

5.4.3. Suggested species, of an appropriate size at full-maturity, which will thrive on the acid soils present at the site, include rowan (*Sorbus aucuparia*), silver birch (*Betula pendula*), hawthorn (*Crataegus monogyna*), field maple (*Acer campestre*), sessile oak (*Quercus petraea*) sweetgum (*Liquidambar styraciflua*) and wild cherry (*Prunus avium*).

5.4.4. To ensure the best possible chances of successful establishment, the trees should be planted in accordance with *BS 8545:2014: Trees: from Nursery to Independence in the Landscape - Recommendations*:

- The trees planted should be container grown, or root balled[1], and regular-standard in size.
- Trees should be supported with a wooden stake and secured to the stake by a biodegradable tie; ties should be adjusted as necessary to allow the stem to incrementally grow without constriction.
- An organic woodchip mulch should be applied annually to a depth of 10 cm, in a 1 m radius around the tree stems, though with the base of the stem kept clear.
- Trees should be watered regularly during the first two growing seasons; though if water does not drain away within ten minutes, the trees are in danger of overwatering.

5.4.5. In the interests of biosecurity, all trees should be sourced from a UK based nursery. Trees should ideally be grown from seed within the UK, or if this is not possible, should have been grown in the UK for at least one year after import.

5.4.6. Aftercare for trees will be required for a period of at least five years after planting. Any trees which have failed to establish within this period will require replacement.

5.5. Additional Information

5.5.1. All visual observations and recommendations specified within this document relate to the condition of the trees and surroundings at the time of the survey. As such, any subsequent changes to landform in the proximity of the trees could invalidate the advice given.

5.5.2. Trees provide valuable habitat for wild birds, bats, and various other forms of wildlife. In accordance with the Wildlife and Countryside Act 1981, the risks posed to these should be suitably assessed before any recommendations within this report are completed.

[1] The pots of containerised trees must be proportionate to the size of the tree in accordance with table D4 of *BS 8545: 2014,* and the rootball of trees in accordance with table D5 of *BS 8545:2014.*

5.5.3. Trees are dynamic living organisms, and their condition can change rapidly; the information given in this report is therefore valid for a period of 18 months. This period may be reduced if significant changes occur to the trees, or the ground conditions, which surround them.

References

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Appendices

Appendix 1: Tree Survey Schedule

Table Key			
Tree/Group Ref: Reference numbers, as illustrated in **Appendix *4: Tree Constraints Plan.***			**Species:** Common (and *binomial name*)
			DBH: Diameter at breast height (1.5m), in millimetres
Height (Ht.): Overall height of tree, measured to nearest metre.			**SULE:** Safe useful estimated life expectancy of tree, in years
Crown Spread (CS): Radius of crown to N, E, S, and W aspects, measured to nearest metre.			**Vitality (V)**: A measure of physiological condition for species and age of tree. **F =** Fair; **P =** Poor; **D =** Dead
Crown Clearance (CC): Clearance from ground level of lowest branch, measured to nearest metre.			**#:** Denotes estimated value
Age	**Young (Y):** Newly planted or self-seeded tree.	**Early-mature (EM):** Trees in second-third of life expectancy for species type.	**Over-mature (OM):** Mature trees which have entered stages of natural decline.
	Semi-mature (SM): Trees in within first-third of life expectancy for species type.	**Mature (M):** Trees in final-third of life expectancy for species type.	**Veteran (V):** Trees of any age, which display ancient characteristics
***BS 5837:2012* Categories**	**Category A:** Trees of high-quality with an estimated remaining life expectancy of at least 40 years, and that are particularly good examples of their species type.		**Category C:** Unremarkable trees of low-quality offering limited arboricultural merit and/or of such impaired condition that they do not warrant in higher categorisation.
	Category B: Trees of moderate-quality with an estimated remaining life expectancy of at least 20 years, though lacking the necessary qualities to warrant Category A designation.		**Category U:** Trees which display serious, irremediable, structural and/or physiological defects.

Individual Trees

Tree Ref:	Species	Age	SULE	Ht.	DBH	CS				CC	Comments	V	Bat Roost Potential	*BS 5837:2012* Category	Recommendations
						N	E	S	W						
T001	Lawson cypress *(Chamaecyparis lawsoniana)*	SM	20-40	7	21	1.5	1.5	1.5	1.5	1	No obvious significant defects, though of limited arboricultural merit and lacking qualities for higher *BS 5837* categorisation.	G	None	C1	Remove tree
T002	Common hawthorn *(Crataegus monogyna)*	Y	20-40	6	10	1	1	1	1	0	No obvious significant defects, though of limited arboricultural merit and lacking qualities for higher *BS 5837* categorisation.	F	None	C1	Remove tree

Tree Ref:	Species	Age	SULE	Ht.	DBH	CS				CC	Comments	V	Bat Roost Potential	*BS 5837:2012* Category	Recommendations
						N	E	S	W						
T003	Common hawthorn *(Crataegus monogyna)*	SM	20-40	10	13 23 36	3	2	3	2.5	2	Multiple-stemmed tree, with dense ivy (Hedera helix) established on main stem and primary branches, obscuring tree features and potential defects.	F	None	C1	Remove tree
T004	Common ash *(Fraxinus excelsior)*	EM	40-80	20	46	2	5	7	5	4	Asymmetrical crown spread to south, anticipated to have developed due to proximity with adjacent tree. Ivy (*Hedera helix*) established on main stem to 8 m.	F	Low	B2	No works recommended
T005	Common ash *(Fraxinus excelsior)*	EM	40-80	23	48 64	9	8	9.5	5.5	4	Bifurcates at ground level into two co-dominant primary stems; union appear included with slight lateral broadening of parent stem directly beneath. Ivy (*Hedera helix*) on main stem to 4 m, particularly obscuring tree features and potential defects. Minor deadwood < 100 mm in diameter scattered throughout crown.	F	Low	B2	No works recommended
T006	Leyland cypress *(Cupressus x leylandii)*	EM	5-10	15	54	2.5	4.5	3.5	2	5	Main stem leans moderately to the east, though with no indication of root plate instability. Situated in proximity to telephone pole with wire also dissecting through crown.	F	None	C1	No works recommended
T007	Cultivar apple *(Malus domestica)*	EM	10-20	8.5	48	5	5	4	3.5	3	Bifurcates at 1 m into four co-dominant primary stems; two of which have been historically removed with 2 m decaying branch stubs remaining in-situ. Multiple crossing branches throughout the crown, typical of species type. Ivy (*Hedera helix*) established on main stem and primary branches, obscuring tree features and potential defects.	F	Medium	C1	Remove tree
T008	Common ash *(Fraxinus excelsior)*	EM	40-80	23	43	4	5	7	5#	3	Positioned on third-party property immediately to the west of the site. Minor deadwood < 100 mm in diameter scattered throughout crown.	F	Low	B2	No works recommended

Tree Ref:	Species	Age	SULE	Ht.	DBH	CS				CC	Comments	V	Bat Roost Potential	*BS 5837:2012* Category	Recommendations
						N	E	S	W						
T009	Common ash *(Fraxinus excelsior)*	M	40-80	23	72	10	9	8.5	7#	5	Positioned on third-party property immediately to the west of the site. Minor deadwood < 100 mm in diameter scattered throughout crown. Branch tear-out wound at 9 m in south aspect of crown, with 3 m decaying branch stub left in-situ. Multiple bird nests within upper portion of crown. Satellite affixed to main stem at 7 m.	F	Medium	B2	No works recommended
T010	Sycamore *(Acer pseudoplatanus)*	EM	40-80	15	40# 40# 35# 30#	5	3#	6.5	5.5	3	Multiple-stemmed tree, positioned on adjacent third-party property; unable to access base of main stems, DBH and CS to east estimated. Dead ivy (*Hedera helix*) on all stems, to 8 m. Minor deadwood < 100 mm in diameter scattered throughout crown. Branches extending southwest encroach upon subject property, with approx. 0.2 m clearance.	F	Low	B2	No works recommended

Groups of Trees

Group Ref:	Species	Age	SULE	Av. Ht.	Av. DBH	Approx. No. of Stems	CC	Comments	V	*BS 5837* :2012 Category	Recommendations
G001	Common hawthorn *(Crataegus monogyna),* Elder *(Sambucus nigra),* Viburnum *(Viburnum* sp.*)*	Y	20-40	4	10	10	0	Linear group of unremarkable trees, lacking qualities for higher *BS 5837:2012* categorisation.	F	C1	Remove group
G002	English yew *(Taxus baccata),* Hazel *(Corylus avellana),* Sycamore *(Acer pseudoplatanus),* European beech *(Fagus sylvatica),* Common holly *(Ilex aquifolium),* Wych elm *(Ulmus glabra)*	Young	10-20	9	15	20	2.5	Group of trees to rear of existing garage and adjacent to steam. Several trees are regen growth from stumps of previously felled trees. Several wych elm appear to have succumb to Dutch elm disease (*Ophiostoma novo-ulmi*).	P	C1	Remove group

Appendix 2: Images of Trees



Plate 1: *T001*



Plate 2: *T001, T002 & T003 (left to right)*



Plate 3: *T004*



Plate 4: *T005*



Plate 5: *T006*



Plate 6: *T007*



Plate 7: *T008*



Plate 8: *T009*



Plate 9: *T010*



Plate 10: *G001 (foreground)*



Plate 12: *G002*

Appendix 3: Arboricultural Method Statement

A3.1 Introduction

A3.1.1 Woodsage Consulting Ltd have been instructed by Harriette Morley, on behalf of G Morley Ltd to produce an Arboricultural Method Statement in relation to the proposed development of the land at 2 Tivy Dale, Cawthorne, Barnsley S75 4EY.

A3.1.2 The development proposals are to extend upon the north aspect of the property; to demolish the existing garage and subsequently construct a new freestanding garage with extended driveway; and to carry out soft-landscaping works within the garden to the rear of the property.

A3.1.3 This Arboricultural Method Statement should be read in conjunction with the Arboricultural Impact Assessment. (Ref: WC-135.2a).

A3.2 Timing of Works

A3.2.1 It is not the Project Arboriculturist's role to determine the timing and implementation of works on site, however, an input into the process can avoid issues once work is underway. The phasing of works should be carried out in accordance with ***Tab. A2.1***, below.

Table A2.1: *Timing of Works*

Stage	Works
1	Site induction
2	Carry out tree removals
3	Install temporary tree protection fencing and ground protection
4	Inspection of tree protection measures by project arboriculturalist
5	Carry out demolition and construction works
6	Remove tree protection fencing and ground protection once works are completed
7	Final inspection by arboricultural consultant

A3.3 Timing of Works

A3.3.1 Prior to works commencing, it is the responsibility of the main contractor, or assigned agent, to ensure that details regarding tree protection are understood and adhered to by all site personnel. During the site induction, this method statement, and a copy of the ***Tree Protection Plan*** - which can be found in ***Appendix 6*** **-** should be made available to all contractors attending the site.

A3.4 Tree Works

A3.4.1 Prior to development works commencing, G001, G002, T001, T002, T003 and T007 will necessitate removal.

A3.4.2 According to information available on the website of Barnsley Metropolitan Borough Council (2023), the site is located within the Cawthorne Conservation Area, and therefore all trees with a stem diameter of > 75 mm at 1.5 m above ground level, are afforded statutory protection.

A3.4.3 No tree removals should therefore be carried out without prior written consent from Barnsley Metropolitan Borough Council. Killing or damaging a protected tree is a criminal offence and can result in an unlimited fine.

A3.4.4 All tree works, including tree removals, should be carried out by a fully insured and suitably qualified arboricultural contractor who is able to comply with *BS 3998: 2010: Tree Works - Recommendations*.

A3.5 Tree Protection Fencing

A3.5.1 Tree protection barriers shall be installed prior to the commencement of demolition and construction works, and should be fit for the purpose of excluding site personnel and machinery. The default specification should be in accordance with *BS 5837:2012*, as is set out below.



Figure A5.1*: Example of mesh welded type barriers in-situ*

A3.5.2 **Specification:** Barriers shall be a minimum 2 m high, and should consist of a vertical and horizontal scaffold framework, well braced to resist impacts, as illustrated in ***Fig. A5.1***, above, and ***Fig. A5.2***, below.

A3.5.3 The vertical tubes should be spaced at a minimum interval of 3 m and driven securely into the ground. Onto this framework, welded mesh panels should be securely fixed.

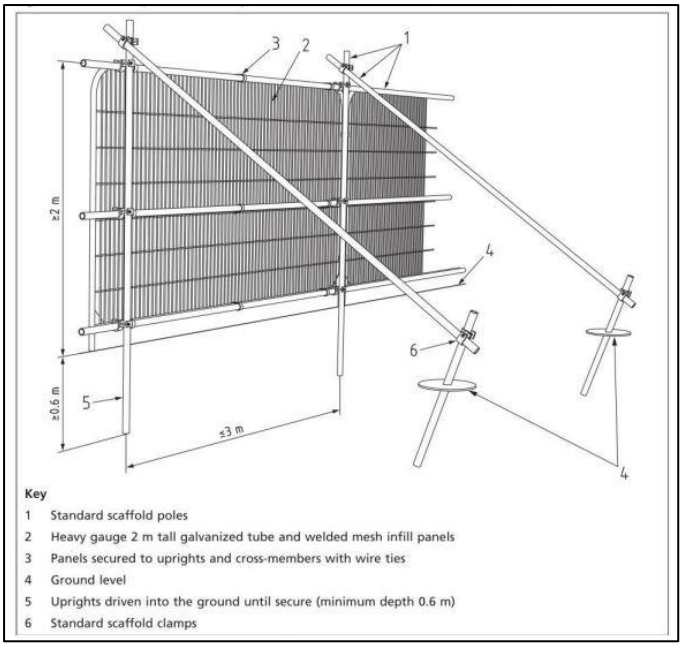


Figure A5.2*: Temporary 2 m steel protective fencing specification*

A4.5.4 All-weather notices should be attached to the barriers at 9 m intervals with the words 'TREE PROTECTION ZONE - NO ACCESS' clearly visible.

A4.5.5 **Location:** Barriers shall where possible be positioned on the perimeter of tree RPAs, as is specified in the ***Tree Protection Plan*** in ***Appendix 6***.

A4.5.6 The protected area should be regarded as sacrosanct, and once installed, tree protection fencing should not be removed or altered without prior recommendation by the Project Arboriculturist.

A4.5.7 If any breach in the tree protection measures occurs it is the Site Manager's responsibility to report this to the Project Arboriculturalist, so the appropriate measures may be taken.

A4.5.8 Since the site is situated within the Cawthorne Conservation Area, any breach in the tree protection resulting in the death or damage to trees, could result in a criminal offence being committed.

A3.6 Additional Details

A3.6.1 No materials hazardous to tree health, such as oil, bitumen or cement should be stored within the protective fencing. Where possible this area should be extended to 10 m away from the fencing.

A3.6.2 Where there is a risk of polluted water runoff into RPAs, heavy duty plastic sheeting and sandbags must be used to contain any spillages and prevent contamination. No fires should be lit within 20 m of the protective fencing.

A3.6.3 As the majority of tree roots are typically found within the first 600 mm of ground level - particular attention should also be paid to existing levels - which should be observed and maintained within tree RPAs. Any unavoidable excavations into the soil within RPAs should be carried out by use of hand-operated tools only, and only under prior approval of the Project Arboriculturalist. No roots > 25mm in diameter should be severed without first consulting the Project Arboriculturalist.

A3.7 Ground Protection

A3.7.1 Where construction works will be necessary within the RPA of T008, and tree protection fencing has been set-back, ground protection shall be installed in all areas of the RPA where bare soil is left exposed and must remain in place throughout the demolition and construction process.

A3.7.2 Ground protection shall consist of inter-linked boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), which are laid onto a geotextile membrane, as illustrated in ***Fig. 7.1***, below.



Figure 7.1*: Examples of ground protection panels*

A3.7.3 Any plant or machinery operating within the RPA of T008 must ensure it does so upon ground protection at all times.

A3.7.4 The area requiring application of ground protection is illustrated in ***Appendix 6: Tree Protection Plan.***

A3.8 Responsibility and Site Management

A3.8.1 It is the responsibility of the main contractor or assigned agent to ensure that details regarding tree protection are understood and followed by all site personnel.

A3.8.2 It is recommended that inspections by the Project Arboriculturalist are undertaken at the following stages:

1. Once tree protection fencing and ground protection has been installed, to determine if these measures are satisfactory.
2. Upon completion of the development works.

A3.8.3 After each inspection, a letter should be submitted by the Project Arboriculturalist to the LPA Arboricultural Officer, to confirm if the method statement has been followed correctly, and if trees have not been adversely affected by construction works.

A3.8.4 Project Arboriculturalist Details:

Mr Jack Delaney
Woodsage Consulting Ltd
Unit 2, Hey End Farm,
Shield Hall Lane,
Luddendenfoot,
West Yorkshire HX2 6JN

Tel: 07962401997
Email: info@woodsage.co.uk

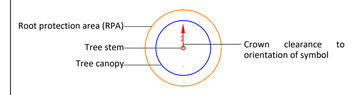
Appendix 4: Tree Constraints Plan

Project:	2 Tivy Dale, Cawthorne, S75 4EY
Drawn by:	Jack Delaney
Date:	30th January 2023
Scale:	1:100 @ A1
Drawing Number:	WC-135.2a.4

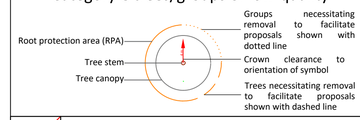
Do not scale off this drawing - to be reproduced in colour only

Map Key:

Category B trees of moderate-quality



Category C trees/groups of low-quality



Approximate Site boundary



Woodsage Consulting Ltd

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E: info@woodsage.co.uk
W: https://woodsage.co.uk



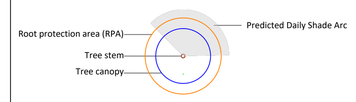
Appendix 5: Shade Analysis Plan

Project:	2 Tivy Dale, Cawthorne, S75 4EY
Drawn by:	Jack Delaney
Date:	30th January 2023
Scale:	1:200 @ A1
Drawing Number:	WC-135.2a.5

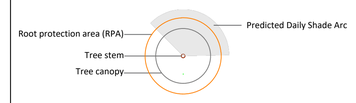
Do not scale off this drawing - to be reproduced in colour only

Key:

Category B trees of moderate-quality



Category C trees of low-quality



Approximate Site boundary



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T006 Leyland Cypress

T009 Common Ash

T005 Common Ash

T004 Common Ash

T008 Common Ash

T010 Sycamore

2

6

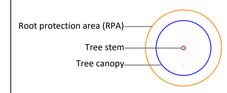
Appendix 6: Tree Protection Plan

Project:	2 Tivy Dale, Cawthorne, S75 4EY
Drawn by:	Jack Delaney
Date:	30th January 2023
Scale:	1:100 @ A1
Drawing Number:	WC-135.2a.6

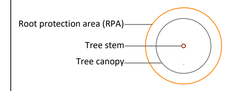
Do not scale off this drawing - to be reproduced in colour only

Map Key:

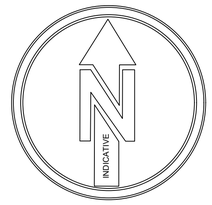
Category B trees of moderate-quality



Category C trees of low-quality



	Temporary tree protection fencing, to *BS 5837:2012* specification, as detailed in ***Appendix 3: Arboricultural Method Statement***
	Ground protection, to *BS 5837:2012* specification, as detailed in ***Appendix 3: Arboricultural Method Statement***
	Approximate Site boundary



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